



PATENT

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Serial No.: 09/742,584)
Applicant: EHRLICH, EHRLICH)
McCANN and BROWN)
Filed: December 21, 2000)
For: ANTI-LOCK BRAKE SYSTEM)
FOR A VEHICLE, SUCH AS A)
TRUCK OR A TRAILER,)
INCLUDING BACK-UP ALARM)
AND/OR LAMPS)
Examiner: D. Kramer)
Art Unit: 3613)
Attorney Docket No.:)
739/37384/306)

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GROUP 3600

RESPONSE TO OFFICE ACTION DATED OCTOBER 30, 2003

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Claims 1-15 and 33-44 were rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 5,132,665 to Hutchisson in view of United States Patent No. 5,549,362 to Broome and further in view of WO 98/11356 to French. Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim 1 specifies "a wheel sensing arrangement connected to said electronic control module by wiring" and claim 11 specifies "said circuit and said electronic control module connected together by wiring". This provides a solution to the unworkable nature of the invention taught by Hutchisson, even when combined with Broome.

As discussed in the prior amendments, Hutchisson discloses as the primary invention a self-powered back up alarm 10 which is mounted on wheel hub 12 of a heavy truck or like vehicle. The alarm 10 includes a housing 14 mounted on the wheel hub 12. A power supply 70, an alarm circuit 72, sensors 20a, 20b and an audio alarm 22, which is a piezoelectric element, are provided in the housing 14. The sensors 20a, 20b, in combination with the alarm circuit 72, produce a reverse motion signal whenever the vehicle backs up. The audio alarm 22 is actuated by the reverse motion signal and emits an audible warning whenever the vehicle backs up.

Hutchisson teaches that the back up alarm 10 is self-powered such that wiring to the remainder (including an ABS or EBS system) of the vehicle is **not necessary or useful**. The present invention is entirely different in that it has a wired connection to the ABS controller and is practical both technically and commercially.

Hutchisson teaches that wheel speed and direction signals can be transmitted, presumably by radio waves, since it is a self-contained system, to a different module to comprise part of a brake control system. Practically, this would be extremely challenging for numerous reasons. To get to a point on the body of the vehicle, radio waves would have to travel through the metal wheel and axle components. Also each wheel would have to be individually identified. Even more challenging would be the issue of avoiding interference between sensors on different vehicles adjacent to each other on the highway.

Another challenge would be for radio waves to handle the required data rates – approximately one wheel speed update per 10 ms is believed to be the slowest control loop update time in use with ABS systems today. It is believed that no production ABS or EBS systems currently use radio waves to transmit wheel speed information and this is over ten

(10) years later than the issue date of Hutchisson. Hutchisson's extensions, and even his teachings of the details of the main embodiment, are unconstrained by practical reality.

Therefore, to modify the combination of Hutchisson and Broome with French, to provide "a wheel sensing arrangement connected to said electronic control module by wiring" as specified in claim 1, or "said circuit and said electronic control module connected together by wiring" as specified in claim 11, would be against the express teachings of Hutchisson and could only be done **with hindsight** from a reading of the disclosure of the present invention.

Applicant admits that French discloses that data from the sensor B to the processing unit 130 can be transmitted by radio frequency (RF) or by wiring as shown in Figure 7. Applicant submits, however, that there is no suggestion to modify Hutchinsson to include wiring absent the use of hindsight after reading the disclosure of the present invention.

Thus, Applicant submits that the combination of Hutchisson, Broome and French does not render obvious claims 1-15 and 33-44. Reconsideration and allowance of claims 1-15 and 33-44 is respectfully requested.

Moreover, as discussed in the prior amendment, the primary invention of Hutchisson does not relate to the braking system whatsoever. Hutchisson does disclose in Col. 7, lines 6-22 that the invention is not limited to a self-powered back up alarm. Hutchisson discloses that the hub-mounted power supply 70 can be used to power sensors other than those used to detect forward/reverse motion. In Col. 7, lines 11-22, Hutchisson discloses that:

Alarm circuit 72 can, for example, be replaced with sensors and associated circuitry designed to monitor both speed and direction of wheel rotation. Signals produced by this circuit could then be forwarded to a central processing unit in the vehicle by a low-powered transmitter also located in housing enclosure 34 and activated by power supply 70. By providing all four wheels of a vehicle with this type of speed monitoring and reporting system, a processor would have essentially instantaneous speed information for each wheel that it could then use to control steering and/or braking.

As Hutchisson states in this excerpt, the alarm circuit 72 is **replaced** with sensors and associated circuitry designed to monitor both speed and direction of wheel rotation and this information is forwarded to the processor to control **steering and/or braking**. In this alternative embodiment disclosed by Hutchisson, the alarm function is **eliminated** because it is **replaced** by the sensors and associated circuitry designed to monitor both speed and direction of wheel rotation. Hutchisson is clear that in this alternate embodiment, the processor is only used to control **steering and/or braking**, and does not provide an alarm function.

Claims 1 and 11 claim that the electronic control module of the braking system interprets and uses the signals from the sensors to perform a back-up warning function. Hutchisson clearly does not contemplate an alarm function in this alternate embodiment. Any interpretation of Hutchisson in this regard can only be done with hindsight after reading Applicant's disclosure of its invention.

The addition of Broome and/or French does not solve the deficiency in Hutchisson. Broome discloses a conventional braking system which can be used to perform an ABS function. French does not disclose braking.

Therefore, Applicant submits that the combination of Hutchisson, Broome and French does not render obvious claims 1-15 and 33-44. Reconsideration and allowance of claims 1-15 and 33-44 is respectfully requested.

With further regard to claims 8, 10 and 44, Applicant again agrees with the Examiner that a J560 connector is an industry standard to connect electrical components. Applicant submits, however, that the J560 connector is in an entirely different part of the vehicle and in no way helps to make connection to the wheel end. It appears that the Examiner has found it obvious to use a J560 connector as the voltage source instead of the hub-mounted power


supply 70 of Hutchisson. Provided Applicant's understanding is correct, Applicant disagrees with the Examiner in this regard. Hutchisson clearly teaches the use of the hub-mounted power supply 70 because as discussed in the Background of Invention section of Hutchisson, "Attaching an alarm to a vehicle so that it is connected to the electrical system further adds to the complexities of installing and maintaining the alarm." Hutchisson has provided the hub-mounted power supply 70 on the hub to do away with this complexity. Therefore, to provide the J560 connector as the power supply would be against the express teachings of Hutchisson. Reconsideration and withdrawal of this rejection is respectfully requested. The addition of Broome does not serve to render obvious these claims.

A Petition for a One-Month Extension of Time is concurrently submitted herewith to extend the date for response up to and including March 1, 2004.

In view of the above Remarks, Applicant respectfully submits that the claims of the application are allowable over the rejections of the Examiner. Should the Examiner have any questions regarding this Amendment, the Examiner is invited to contact one of the undersigned attorneys at (312) 704-1890.

Respectfully submitted,

Dated: March 1, 2004

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